Gaining more education does lead to higher wages

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*Economists have long been asking whether increasing education leads to higher wages. In his recently published work, **Matt Dickson** exploits the relationship between smoking as a teenager and education choice to tease out the causal relationship. He finds that, across the distribution of education levels and the ability range, getting more education does result in a higher wage. For policy, this means that raising the participation age is a good move and – if properly enforced – should lead to tangible benefits for those affected.*

Whether or not increasing education leads to higher wages is a question that has bothered economists for decades. The answer is perhaps more important for the government, who finance the majority of education in this country, and individuals who have to decide at what point to leave education and start work. In recent years this question has been brought into sharper focus following a number of policies that have altered the education landscape in the UK: the higher education expansion that took place during the first half of the 1990s, the subsequent introduction of undergraduate tuition fees and their increases – to a current maximum of £9,000 per year – and the "raising of the participation age" from 16 to 17 this year, which will be followed by a further increase to 18 in 2015.

The difficulty in answering the question and estimating the wage "return" to additional schooling is that we cannot simply compare the earnings of individuals with different levels of schooling and attribute wage differences to the difference in education. Prior to this year's raising of the participation age, everyone in this country had to remain in school up to the age of 16. After that, people were free to choose to stay on and study further or leave and enter the labour market. This decision is not, on the whole, made at random and that is the problem when it comes to estimating the return to education. There are characteristics, many of them unobservable or at least unquantifiable, that are more prevalent in the people who choose to remain longer in education than in those who don't. What we might call "natural ability" is an obvious example: the more able students find academic study easier, do well in school and choose to stay longer. But when it comes to then quantifying how much their additional education increases their wages we can't do it – as we can't separate out the effect of the additional education from the effect of their natural ability. These people would probably have earned more than average even without the extra education as they have more "ability" which makes them more productive and is rewarded in a higher wage. In addition to "ability" there are other characteristics – such as ambition, motivation, taste for risk – that influence a person's choice of education level and may also independently affect their wage. This compounds the difficulty in getting a "clean" estimate of the return to education.

How to tackle the question

To get round this, economists have exploited situations that lead to one group of people gaining more education than an otherwise identical group, for essentially random reasons. Introducing this randomness and removing the link between education level and unobservable characteristics means that the wages of these two groups of people can be compared and we can be confident that the difference is down to the difference in education. One strategy that has been pursued in the UK is to compare the wages of those people leaving school just before and just after the minimum school leaving age was increased from 15 to 16 in 1972. The group before the law change were able to leave school at age 15 if they wanted to, while students in the next school year had to remain until at least age 16. This means that some of those in the younger group – anyone who wanted to leave as early as possible – were given an extra year of schooling through no choice of their own. Comparing the wages of these two groups of otherwise identical people allows us to estimate the effect of that extra education on earnings. This has been done a number of times and the answer is that this year of schooling increases hourly wages by between 7% and 10%.

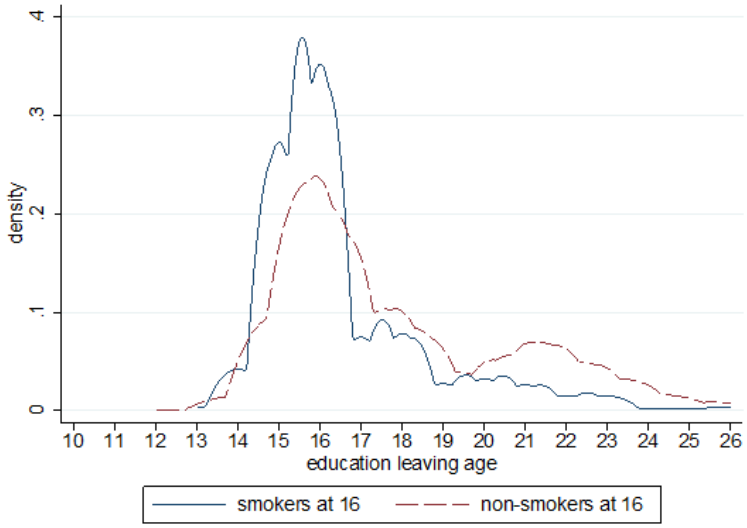
The problem with this method is that the estimate only captures the effect on wages of being made to remain in

school from age 15 to 16 – going from 10 years to 11 years of education. Moreover, on the whole, the people affected did not want be there and were from the lower tail of the "ability" distribution. So these estimates might not be very representative of the average return to another year of education for a random person in the population – which is what we would like to know.

Smoking out the answer

An alternative strategy used in some of my recently published work exploits the relationship between smoking as a teenager and education choice. The idea is that just as education levels are not randomly assigned across the population, neither is the decision to smoke. Using data from the 1990s and the first part of the 2000s, I find a strong relationship between whether a person smoked as a teenager and how many years of education they attained. I argue that this is because both decisions involve trading off current and future costs and benefits. Those with stronger preferences towards the present are likely to leave school earlier – rather than investing now for higher future wages – and are also more likely to smoke, as they focus more on the current pleasure of the habit and less on the potential future health consequences. By comparing the differences in education between teen smokers and non-smokers and differences in their later wages, we can work out the wage return to additional education.

For this strategy to work, it has to be the case that whether or not you smoked as a teenager has no effect on your later wages and isn't associated with anything else that might affect your wages. I am able to show that it isn't just poorer background that teen smoking reflects, nor is it just low ability teenagers with the lowest levels of education that smoke. In fact, as the figure shows here, the distribution of age when left education is pretty similar for teenage smokers and non-smokers, just with the curve shifted back by just under a year for teen smokers.



Another test that I'm able to do uses a proxy measure of "ability" and shows that young people across the ability spectrum are teen smokers and the reduction in years of education associated with smoking is pretty similar across the board. Interestingly, in the same data the increase in education associated with the 1972 raising of the school leaving age is about one year for the lowest part of the "ability" distribution but has no effect at all further up, highlighting that this strategy *does* just capture the return for lower parts of the ability and education distribution.

So what is the answer? The estimate of the value of an additional year of education using the teen smoking approach is just under 13%. As it derives from people across the ability distribution and with all different levels of education, it is arguably more representative of the average return that we are interested in knowing.

What does this mean for education policy?

What these results suggest is that education continues to be a decent investment – and not just for those at the lower end of the distribution, where additional years and qualifications can make a real difference to prospects.

Across the distribution of education levels and the ability range, getting more education leads to a higher wage. For policy, this means that raising the participation age is a good move and – if properly enforced – should lead to tangible benefits for those affected. Moreover, continuing in education at any level, especially where it leads to additional qualifications, is an investment that on average pays a good return.

Note: This article gives the views of the author, and not the position of the British Politics and Policy blog, nor of the London School of Economics. Please read our comments policy before posting.

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